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10/606,727	06/26/2003	Eunkyu Jang	HDD03-HM01	5822

7590 07/27/2005  
Samsung Information Systems America  
75 West Plumeria Drive  
San Jose, CA 95134

EXAMINER

RENNER, CRAIG A

ART UNIT PAPER NUMBER

2652

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/606,727

Applicant(s)

JANG ET AL.

Examiner

Craig A. Renner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 6-8 and 14-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-13 and 17-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of "Species II," upon which "Claims 1-5, 9-13, and 17-20" are said to be "related", in the reply filed on 09 March 2005 is acknowledged. Accordingly, claims 6-8 and 14-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more non-elected inventions/species, there being no allowable generic or linking claim.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "the inner pair of traces conveying electrical current from the voice coil to the head slider" and "the outer pair of traces conveying electrical current from the voice coil to the head slider" as set forth in independent claim 1, and the "inner pair of conductive traces coupled to the voice coil motor and to the head slider for conveying electrical current between the voice coil and head slider" and the "outer pair of conductive traces coupled to the voice coil motor and to the head slider for conveying electrical current between the voice coil and head slider" as set forth in independent claim 9 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities:

In line 1 in each of claims 18-19, "The flexure assembly" should be changed to --The flexure arm assembly-- in order to more clearly refer back to that set forth in line 1 of independent claim 17. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-5 and 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. In lines 4 and 6 of claim 1 and line 2 in each of claims 2, 4 and 5, it is indefinite as to whether each instance of "the flexure arm" refers to that set forth in line 1 of independent claim 1, or that set forth in line 2 of independent claim 1.

b. In lines 7 and 9 of claim 1, each instance of "the head slider" is indefinite because it lacks clear and/or positive antecedent basis.

c. In lines 4, 8, 11, 13 and 14-15 of claim 9, line 3 of claim 10 and line 2 in each of claims 12 and 13, it is indefinite as to whether each instance of "the flexure arm" refers to that set forth in line 1 of independent claim 9, or that set forth in line 2 of independent claim 9.

d. In lines 6 and 9 of claim 9, each instance of "the head slider" is indefinite because it lacks clear and/or positive antecedent basis.

e. In lines 7 and 10 of claim 9, each instance of "the ... head slider" is indefinite because it lacks clear and/or positive antecedent basis.

f. Claims 3 and 11 inherit the indefiniteness associated with their respective base claims and stand rejected as well.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-2 and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Endo et al. (US 5,696,651).

With respect to claims 1-2, Endo teaches an interconnect comprising a flexure arm (42) coupled to an actuator arm (40) pivotally mounted to a base plate (33) via a bearing assembly (36); a head slider gimbal (43) mounted to the flexure arm; a voice coil motor (includes 38, 77a and 77b) comprising a voice coil (38) coupled to a magnet assembly (includes 77a and 77b); an inner pair of conductive traces (connected to nodes 47<sub>2</sub> and 47<sub>3</sub>) disposed along the flexure arm, the inner pair of traces conveying electrical current from the voice coil to the head slider; and an outer pair of conductive traces (connected to nodes 47<sub>1</sub> and 47<sub>4</sub>) disposed along the flexure arm, the outer pair of traces conveying electrical current from the voice coil to the head slider [as per claim 1]; wherein the inner pair of conductive traces and outer pair of conductive traces are symmetrical about a center axis of the flexure arm (as shown in FIGS. 6A and 6B, for instance) [as per claim 2].

With respect to claims 17-20, Endo teaches a flexure arm assembly comprising a flexure arm (42) having a center axis; a first pair of conductive traces (connected to

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nodes 47<sub>2</sub> and 47<sub>3</sub>) disposed along the center axis with one trace of each pair on opposite sides of the center axis (as shown in FIGS. 6A and 6B, for instance); and a second pair of conductive traces (connected to nodes 47<sub>1</sub> and 47<sub>4</sub>) disposed along the center axis with one trace of each pair on opposite sides of the center axis (as shown in FIGS. 6A and 6B, for instance) [as per claim 17]; wherein each trace of the first pair of traces are positioned symmetrically on opposite sides of the center axis (as shown in FIGS. 6A and 6B, for instance) [as per claim 18]; wherein each trace of the second pair of traces are positioned symmetrically on opposite sides of the center axis (as shown in FIGS. 6A and 6B, for instance) [as per claim 19]; wherein the flexure arm assembly further comprises a window (45a, for instance) etched symmetrically about the center axis of the flexure arm (as shown in FIGS. 5A and 6A, for instance) [as per claim 20].

8. Claims 1-5 and 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Balakrishnan (US 5,754,369).

With respect to claims 1-5, Balakrishnan (US 5,754,369) teaches an interconnect comprising a flexure arm (14/16A) coupled to an actuator arm (46) pivotally mounted to a base plate (32) via a bearing assembly (35); a head slider gimbal (15) mounted to the flexure arm; a voice coil motor (includes 42) comprising a voice coil (42) coupled to a magnet assembly (shown in dashes under 42 in FIG. 1, for instance); an inner pair of conductive traces (includes 62B2 and 62B3 as shown in FIG. 4, for instance) disposed along the flexure arm, the inner pair of traces conveying electrical current from the voice coil to the head slider; and an outer pair of conductive traces (includes each 60A as

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shown in FIG. 4, for instance) disposed along the flexure arm, the outer pair of traces conveying electrical current from the voice coil to the head slider [as per claim 1]; wherein the inner pair of conductive traces and outer pair of conductive traces are symmetrical about a center axis of the flexure arm (as shown in FIGS. 2 and 4, for instance) [as per claim 2]; wherein the inner pair of conductive traces comprise a pair of write traces (as shown in FIG. 4, for instance) and the outer pair of conductive traces comprise a pair of read traces (as shown in FIG. 4, for instance) [as per claim 3]; wherein the interconnect further comprises a stainless steel lamina (12) extending the length of the flexure arm; and a window (13, for instance) etched in the stainless steel lamina adjacent to the pair of write traces (as shown in FIG. 2, for instance, in as broad as the term "adjacent" may be construed) [as per claim 4]; and wherein the window etched in the stainless steel lamina is symmetrical about the center axis of the flexure arm (as shown in FIG. 2, for instance) [as per claim 5].

With respect to claims 9-13, Balakrishnan (US 5,754,369) teaches a symmetric interconnect comprising a flexure arm (14/16B) coupled to an actuator arm (46) pivotally mounted to a base plate (32) via a bearing assembly (35); a head slider gimbal (15) mounted to the flexure arm; a voice coil motor (includes 42) comprising a voice coil (42) coupled to a magnet assembly (shown in dashes under 42 in FIG. 1, for instance); an inner pair of conductive traces (includes each 62Aa, for instance) coupled to the voice coil motor and to the head slider, the inner pair of traces extending the length of the flexure arm and symmetrical about a center axis thereof (as shown in FIG. 3 taken in conjunction with FIG. 5, for instance); and an outer pair of conductive traces (includes



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each 60A, for instance) coupled to the voice coil motor and to the head slider, a trace of the outer pair of conductive traces extending the length of the flexure arm adjacent to a like electrical polarity trace of the inner pair of traces (as shown in FIG. 5, for instance) and a remaining trace of the outer pair of conductive traces extending the length of the flexure arm adjacent to a like electrical polarity trace of the inner pair of traces (as shown in FIG. 5, for instance), such that the outer pair of traces are symmetrical about the center axis of the flexure arm (as shown in FIG. 3 taken in conjunction with FIG. 5, for instance) [as per claim 9]; wherein each trace of the outer pair of conductive traces extends adjacent a like trace of the inner pair of traces and is interposed between a side of the flexure arm and the like trace of the inner pair of traces (as shown in FIG. 5, for instance) [as per claim 10]; wherein the inner pair of conductive traces comprise a pair of write traces (as shown in FIG. 3 taken in conjunction with FIG. 5, for instance) and the outer pair of conductive traces comprise a pair of read traces (as shown in FIG. 3 taken in conjunction with FIG. 5, for instance) [as per claim 11]; wherein the interconnect further comprises a stainless steel lamina (12) extending the length of the flexure arm; and a window (13, for instance) etched in the stainless steel lamina adjacent to the pair of write traces (as shown in FIG. 2 taken in conjunction with FIGS. 3 and 5, for instance, in as broad as the term "adjacent" may be construed) [as per claim 12]; and wherein the window etched in the stainless steel lamina is symmetrical about the center axis of the flexure arm (as shown in FIG. 2, for instance) [as per claim 13].

With respect to claims 17-20, Balakrishnan (US 5,754,369) teaches a flexure arm assembly comprising a flexure arm (14) having a center axis; a first pair of conductive

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traces (each 60A, for instance) disposed along the center axis with one trace of each pair on opposite sides of the center axis (as shown in FIG. 3 taken in conjunction with FIG. 3B, for instance); and a second pair of conductive traces (each 62A, for instance) disposed along the center axis with one trace of each pair on opposite sides of the center axis (as shown in FIG. 3 taken in conjunction with FIG. 3B, for instance) [as per claim 17]; wherein each trace of the first pair of traces are positioned symmetrically on opposite sides of the center axis (as shown in FIG. 3, for instance) [as per claim 18]; wherein each trace of the second pair of traces are positioned symmetrically on opposite sides of the center axis (as shown in FIG. 3, for instance) [as per claim 19]; wherein the flexure arm assembly further comprises a window (as shown in FIG. 3, for instance) etched symmetrically about the center axis of the flexure arm (as shown in FIG. 3, for instance) [as per claim 20].

### ***Claim Rejections/Considerations - 35 USC § 103***

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

### ***Pertinent Prior Art***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This includes Balakrishnan (US 5,995,328), Doundakov et al.

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(US 6,249,404), Yamaoka et al. (US 6,882,506), and Arni et al. (US 2003/0193753), which each individually teaches a flexure arm assembly with pairs of conductive traces disposed on opposite sides of a center axis of a flexure arm.

### **Conclusion**

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Tuesday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Craig A. Renner  
Primary Examiner  
Art Unit 2652

CAR